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# **The Influence of Adult and Peer Models on Children's and Adolescents' Sharing Decisions**

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## Abstract

This study explores how the age (adult vs. peer) and the suggestion (to be fair vs. unfair) of models affect the sharing decisions of 9- and 12-year-olds from Italy and Singapore. Our results demonstrate a developmental shift in the influence of models on children's and adolescents' sharing decisions in both cultures: Children's decisions were more affected by the suggestion of an adult model than by that of a peer model, whereas the opposite was true for adolescents. Regardless of the models' influence, participants considered equal sharing to be the fair choice and reported being happier when their sharing decisions were generous. Our results highlight the crucial importance of social and developmental factors for the promotion of fairness judgments and emotions.

**Keywords:** social learning, adult and peer models, sharing decision.

## **“If I Were You...”: The Influence of Adult and Peer Models on Children’s and Adolescents’ Sharing Decisions**

Facing moral uncertainty, children often solicit and follow others’ suggestions. Parents, teachers, and peers all potentially influence children’s acquisition and maintenance of moral norms. Among these norms, fairness is key. Fairness entails a distribution of goods following the “principle of equality,” according to which recipients should receive equal shares if no other criteria apply. We investigated how a model’s age (peer vs. adult) and type of suggestion (fair vs. unfair) affected Italian and Singaporean children’s and adolescents’ sharing decisions. This allowed us to test cultural differences and similarities in the influence of adult and peer models on children and adolescents’ sharing.

### **Influence of Others**

Social learning theory postulates that individuals learn behaviors, attitudes, and social norms by imitating others (Bandura, 1977, 1986), a capacity that emerges in infancy (Wood, Kendal, & Flynn, 2013a). Studies suggested that young children are biased when deciding whom to learn novel information from. Preschoolers preferentially learn from models shown to be reliable, knowledgeable, or holding a high status (Mills, Legare, Grant, & Landrum, 2011) and from adult rather than child models (Seehagen & Herbert, 2011), particularly when the adult and child informants are equally reliable (Jaswal & Neely, 2006) and in domains where adults are expected to have more expertise than children (VanderBorght & Jaswal, 2009). This age bias emerges not just for neutral (e.g., word labels), but also for normative information. Three- and 4-year-old children were more likely to imitate novel game rules modeled by an adult rather than a child, and children were more likely to protest when a third party followed the rules set out by the child than the adult model (Rakoczy, Hamann, Warneken, & Tomasello, 2010). Thus, young

children were more likely to regard the rules modeled by the adult as normative, as rules that everyone should follow.

Nevertheless, peers can exert a strong influence on preschoolers' judgments. Based on Asch's (1956) conformity experiments, preschoolers were presented with a peer majority who made unanimous but erroneous judgments. Forty to 60% of 4-year-olds adapted their responses to those of the (incorrect) peer majority on visual and social-conventional judgment tasks, despite knowing the correct solution (e.g., Haun & Tomasello, 2011; Kim, Chen, Smetana, & Greenberger, 2016). However, 80 to 60% of preschoolers did not conform to a peer (or adult) majority when conformity contradicted a moral norm (Enesco, Sebastián-Enesco, Guerrero, Quan, & Garijo, 2016; Engelmann, Herrmann, Rapp, & Tomasello, 2016).

Most of the recent research on the influence of adults and peers on children's judgments has been conducted with infants and preschool children (Wood et al., 2013a), and relatively little is known about age biases in older children and adolescents. Earlier studies (e.g., Berndt, 1979; Bishop & Beckman, 1971) found that self-reported conformity with peers significantly increased between 9 and 15 years, whereas conformity with parents declined. This increasing importance of peers for adolescents has also been reported for interpersonal relationships (e.g., Bracken & Crain, 1994; Brown, 2004) or risky and problem behavior (e.g., Gardner & Steinberg, 2005; Goldstein, Davis-Kean, & Eccles, 2005). Thus, adolescents might be more susceptible to information provided by peers, while children might be more likely to follow adults' suggestions. We investigated this question for children's and adolescents' sharing decisions.

### **Fairness Behavior, Moral Judgment, and Emotions**

Children begin to engage in prosocial behavior in their second year of life (Brownell, Ramani, & Zerwas, 2006; Warneken, Chen, & Tomasello, 2006). Several studies have examined

the development of fairness in sharing using the dictator game paradigm (e.g., Harbaugh, Krause, & Liday, 2000; Sally & Hill, 2006). In a typical one-shot dictator game, upon receiving a certain resource (e.g., \$10), a dictator decides how much to give to a recipient and how much to keep. Because the dictator has received the resource without cause, splitting equally should be the *fair* solution. However, most adult dictators share only around 25% of the given resource (Camerer, 2003). While Olson and Spelke (2008; Warneken, Lohse, Melis, & Tomasello, 2011) found that preschool children are already sensitive to fairness and able to share equally, others suggested that sharing does not follow equality norms before 5-7 years of age (Benenson, Pascoe, & Radmore, 2007; Fehr, Bernhard, & Rockenbach, 2008). Furthermore, in some studies older children, adolescents, and young adults shared more in dictator games than preschoolers (e.g., Benenson et al., 2007; Harbaugh et al., 2000; Malti, Gummerum, Keller, Chaparro, & Buchmann, 2012), but others found no developmental differences in sharing between 9- and 17-year-olds (e.g., Gummerum, Keller, Takezawa, & Mata, 2008) or a decrease in sharing between 8- and 12-year-olds (Ongley & Malti, 2014). Thus, there seems to be no clear linear developmental trend in sharing decisions between childhood and adolescence.

Adult models can influence children's sharing (e.g., Bryan, 1971; Bryan & Walbek, 1970; Rushton, 1975). Grusec, Saas-Kortsak, and Simutis (1978) presented children with an adult who shared generously and/or preached about the importance of sharing. Enacted behavior prompted more generous offers from children than preaching, although the latter was effective, as well. More recently, Benozio and Diesendruck (2016) presented 3-/4- and 5-/6-year-old children with explicit recommendations by their teachers to either distribute stickers prosocially ("give all") or antisocially ("give none") with an unknown in- or outgroup recipient. Older children (and particularly boys) were more likely to follow the teacher's recommendations, while

the authority's preference did not affect 3-/4-year-olds' decisions. Thus, children follow both the prosocial and antisocial suggestions of adults in their sharing decisions. Whether peers' recommendations affect sharing to a similar degree and whether the influence of adult and peer models on sharing differs for children and adolescents will be addressed in the present study.

Nearly all the research on the dictator game and similar resource-allocation tasks has focused on the outcomes of the sharing decisions. However, it is also crucial to understand what sharing decisions people consider *right* and whether equality, as a norm of fairness, has any psychological validity. Keller, Gummerum, Canz, Gigerenzer, and Takezawa (2013) asked children and adolescents who had made sharing offers in a dictator game what they considered a “fair” share. Between 70 and 90% of participants evaluated equality as the morally right distribution supporting the psychological validity and relevance of the fairness norm in the dictator game. But only half of the participants actually shared the given resource equally, confirming the well-known “moral judgment–behavior gap”: A moral norm, though recognized as valid, is not necessarily applied to the self (Arsenio & Gold, 2006).

Another, more indirect indicator of whether people consider equal sharing to be the moral norm concerns the emotions they attribute to a *violator* of a norm. Whereas 4- to 6-year-olds tend to attribute positive emotions to the violator when the violation proves beneficial for him/her (i.e., the “happy victimizer phenomenon”), older children attribute negative and mixed emotions to the violator and themselves as violators (e.g., Keller, Lourenço, Malti, & Saalbach, 2003; Malti & Ongley, 2014). Therefore, the finding that children experience more negative emotions when their sharing decisions are selfish would further validate equal sharing as the moral norm in the dictator game.

### **Cultural Differences**

Although sharing can be considered one of the key human prosocial behaviors, empirical research has found cultural differences in adults' and children's resource allocations (e.g., Blake et al., 2015; Henrich et al., 2005; Paulus, 2015; Schäfer, Haun, & Tomasello, 2015). Of particular interest for the current study, urban East Asian preschoolers and 9- to 17-year-olds allocated resources less selfishly than their North-American or German peers (Rochat et al., 2009; Zhu, Keller, Gummerum, & Takezawa, 2010).

Cross-cultural research on the influence of adult and peer models on children's and adolescents' behavior is scarce. Studies indicated that adults in societies high in collectivism and conservatism and low in autonomy show higher levels of conformity (Bond & Smith, 1996). Research on the development of authority conceptions revealed that, similar to their western peers, East-Asian children and adolescents follow authorities' legitimate moral and social-conventional commands (Smetana, Wong, Ball, & Yau, 2014; Yau, Smetana, & Metzger, 2009). Chinese children often comply with their parents' demands and tend to be more obedient to adult authority than North-American children (Yau & Smetana, 1996). However, across cultures, obedience to adults decreases between 5 and 13 years (Laupa & Tse, 2005; Smetana et al., 2014).

### **The Present Study**

This study investigates the influence of fair ("give half") or selfish ("give nothing") suggestions of an adult or peer model on the sharing decisions of children (9-year-olds) and adolescents (12-year-olds) from Italy and Singapore, using an adaptation of the dictator game. We expected participants' allocations to be more generous when the model's suggestion was fair than when it was selfish. Moreover, assuming that the influence of models changes from childhood to adolescence, we hypothesized that children would be influenced more by the recommendations of adults, whereas adolescents would be more influenced by peers.



We also asked what participants considered to be the fairest distribution and how happy they were with their sharing decisions. We hypothesized that the majority of participants would deem equality as the fairest allocation, independent of the suggestion of the model. Moreover, participants might report being happier about their decisions when they had offered what they considered fair or more.

Based on previous cross-cultural research, we might expect Singaporean participants to be more likely to follow the recommendations of adults than Italian participants. However, the influence of adult models should decrease for adolescents from both cultures.

## Method

### Participants

The Italian sample comprised 184 participants, 84 third-graders (36 females;  $M_{\text{age}} = 9.00$  years,  $SD = 0.74$ ) and 100 middle-school students (53 females;  $M_{\text{age}} = 11.97$  years,  $SD = 0.87$ ), from two schools in Livorno, Italy. The Singaporean sample comprised 181 participants, 106 third-graders (37 females;  $M_{\text{age}} = 8.66$  years,  $SD = 0.62$ ) and 75 middle-school students (36 females;  $M_{\text{age}} = 12.74$  years,  $SD = 0.79$ ). Participants from both cultures were from diverse social classes.

### Design and procedure

The experiment took place in the classroom. All students in one classroom were tested together. However, participants were encouraged to work individually and privately. Participants were first given a short comic strip to read that presents “Ale” (Italian sample) or “Jacky” (Singaporean sample), a character of unspecified gender and of similar age to the participants (see Figure A1, Appendix). In the comic, Ale/Jacky is given 10 chocolates by a second

character—the model. The model, either a peer or an adult, asks Ale/Jacky to decide how to share the 10 chocolates with a friend and suggests how to share them.

Participants were randomly assigned to one of four experimental conditions, resulting from the combination of two independent variables: (1) the age of the model (adult vs. peer), with the peer model designed to look of similar age to Ale/Jacky and the participants; and (2) the model's suggestion, either fair ("If I were you, I would give half of them...I think it would be fair") or unfair ("If I were you, I would keep them all... nobody will know!"). After reading the comic, participants were asked to write down privately how many of the 10 chocolates they wanted to keep and how many they wanted to give away (i.e., share; see Appendix, Figure A2 for the answer sheet). Finally, participants were asked what sharing decision would have been fair and to report the emotions related to their sharing decisions (i.e., "happy," "not very happy," "not happy at all," "I don't know").

In the classical dictator game, decisions are not hypothetical, but have real consequences for the dictators' and the recipients' payoffs. We implemented this incentive in the following way: At the end of the experiment, students were asked to turn over their experimental packs. In each classroom, the back of four randomly chosen packs had been marked with a dot. Those students with of the marked experimental packs received the number of chocolates they had decided to keep as dictators. The number of chocolates they had decided to give away were given to similarly selected students of another class. The dictators did not know who the recipients were and vice versa. Selected participants received their payoff from a second experimenter in a separate room to guarantee the anonymity of their decisions.

## Results

**Number of chocolates shared.** Figure A3 (Appendix) displays the distributions of number of chocolates shared by age, type of model, and country. A univariate analysis of variance (ANOVA) with number of chocolates shared as the dependent variable and participant's age (9 years, 12 years), type of model (adult, peer), suggestion (fair, unfair), and country (Italy, Singapore) as between-subjects factors revealed significant interaction effects of Age×Model×Suggestion,  $F(1,349) = 18.00, p = .001, \eta^2 = .05$ , and Age×Model×Country,  $F(1,349) = 10.60, p = .001, \eta^2 = .03$ . In both countries, the suggestion of the adult model had a stronger effect on the 9-year-olds' sharing decisions than that of the peer model (Figure 1). Nine-year-olds from both countries were more generous when the adult model's suggestion was fair ( $M_{\text{adult-fair}} = 5.63, SD = 1.64$ ) than when it was unfair ( $M_{\text{adult-unfair}} = 4.21, SD = 1.65$ ),  $t(86) = 4.04, p = .001$ . There was no difference in the number of chocolates shared by the 9-year-olds in the two peer-model conditions ( $M_{\text{peer-fair}} = 5.40, SD = 1.65$ ;  $M_{\text{peer-unfair}} = 5.36, SD = 1.86$ ),  $t(100) = 0.11, p = .912$ . Conversely, 12-year-olds were more affected by the suggestions of the peer model, and the influence of the peer (vs. the adult) model was stronger among Singaporean than Italian adolescents (Figure 1). Italian adolescents were more generous when the peer model's suggestion was fair ( $M_{\text{peer-fair}} = 4.56, SD = 1.42$ ) than when it was unfair ( $M_{\text{peer-unfair}} = 3.63, SD = 1.08$ ),  $t(50) = 2.676, p = .010$ , but shared to a similar degree following the fair and unfair suggestion of the adult model ( $M_{\text{adult-fair}} = 5.00, SD = 0.95$ ;  $M_{\text{adult-unfair}} = 4.68, SD = 2.10$ ),  $t(46) = 0.671, p = .506$ . Singaporean 12-year-olds were more generous when the peer model suggested a fair ( $M_{\text{peer-fair}} = 5.95, SD = 2.37$ ) than an unfair sharing ( $M_{\text{peer-unfair}} = 3.90, SD = 2.47$ ),  $t(38) = 2.678, p = .011$ , but they showed a (non-significant) tendency to do the opposite of what the adult model suggested (i.e., shared more generously when the adult suggested an unfair

allocation and v.v;  $M_{\text{adult-fair}} = 3.05$ ,  $SD = 2.26$ ;  $M_{\text{adult-unfair}} = 4.20$ ,  $SD = 2.37$ ,  $t(33) = 1.46$ ,  $p = .154$ )

Additionally, main effects of Suggestion,  $F(1,349) = 11.62$ ,  $p = .001$ ,  $\eta^2 = .03$ , Age,  $F(1,349) = 17.48$ ,  $p = .001$ ,  $\eta^2 = .05$ , and Model,  $F(1,349) = 3.94$ ,  $p = .048$ ,  $\eta^2 = .01$ , emerged. Participants were more generous following a fair ( $M = 5.09$ ,  $SD = 1.88$ ) than an unfair suggestion ( $M = 4.45$ ,  $SD = 1.95$ ); 9-year-olds were more generous ( $M = 5.15$ ,  $SD = 1.78$ ) than 12-year-olds ( $M = 4.37$ ,  $SD = 2.03$ ); participants shared more following the suggestions of the peer ( $M = 4.94$ ,  $SD = 1.93$ ) than the adult model ( $M = 4.59$ ,  $SD = 1.94$ ).

Additional analyses based on the proportion of selfish participants as dependent variable are largely consistent with those from the previous analysis (Figure A4, Appendix). Furthermore, *effect size* analyses confirmed that the adult model had more influence on the 9-year-olds than the peer model, whereas the peer model affected the 12-year-olds more than the adult model (Figure A5, Appendix).

**Fairness judgment and emotion attribution.** The majority of participants reported that giving five or more chocolates would be the fairest offer, independent of age (9 years: 87%; 12 years: 85%), type of model (adult: 84%; peer: 91%), suggestion (fair: 90%; unfair: 86%), or country (Italy: 88%; Singapore: 83%).

Figure 3 shows the proportion of participants who reported being happy about their sharing decisions in each Age×Dissonance condition. *Dissonance* is the difference between the number of chocolates a participant decided to give away and what s/he reported being the fair share. If a participant decided to give more than what s/he said was fair, the dissonance is positive; otherwise, negative. We did not consider the four Model×Suggestion conditions in the analysis because there were not enough participants to render the analysis reliable. In both

countries, positive (84%) and negative dissonance (70%) were not associated with reported happiness among 9-year-olds,  $\chi^2(1) = 1.63, p = .24$ . Among 12-year-olds, positive dissonance was associated with significantly higher reported happiness (84%) than negative dissonance (55%),  $\chi^2(1) = 20.12, p < .001$ .

## **Discussion**

This study showed that the suggestions of adult and peer models affected children's and adolescents' decisions about how to share resources with an anonymous recipient: Participants shared significantly more when presented with a fair rather than an unfair model. Children and adolescents did not just follow others' prosocial but also antisocial recommendations in their sharing behavior (see also, Benozio & Diesendruck, 2016; Grusec et al., 1978). The general effectiveness of models in steering children's and adolescents' behavior toward or away from the fairness norm supports the long-standing tradition of learning by following examples (Bandura, 1977; Wood et al., 2013a).

Previous research (see Wood et al., 2013a) did not investigate whether adult and peer models differentially affect the behavior of children and adolescents. In our study, the adult model's suggestion had more influence on the sharing decisions of the 9-year-olds than that of a peer model, whereas it was the opposite for the 12-year-olds. Young children's preference of learning from adult over peer models has been interpreted as children regarding adults as more competent or knowledgeable in the respective domain (e.g., Rakoczy et al., 2010; VanderBorgh & Jaswal, 2009). Thus, the finding that adolescents preferentially followed the recommendations of peer models suggests that they regard peers as more competent than adults in a morally relevant situation. This supports the extensive literature on the importance of peers in adolescence not just for problem (e.g., Goldstein et al., 2005), but also for fair behavior.

Consequently, our study has both theoretical and applied implications. Theoretically, costly sharing signifies people's willingness to forgo personal profits for the sake of equality, fairness, and social justice. Peers have an important role to play to model and establish these values, at least among adolescents (Hart & Carlo, 2005). From an applied perspective, educators should be careful when selecting models for a certain age group. To promote equality and fairness, parent- and teacher-models could work better for younger children, whereas peer models might have more impact on adolescents (see Nucci, 2008).

This study adapted the dictator game to study children's and adolescents' resource allocations. Unlike in some previous research (e.g., Benenson et al., 2007), in our study the 9-year-olds were generally more generous than the 12-year-olds, which corresponds to the age effects found by Ongley and Malti (2014). One potential reason for these mixed findings might be the different value participants attributed to the resources, as children have been shown to share more of their least favorite stickers (Blake & Rand, 2010). Another reason might be attributable to differences in study settings: One of the first dictator game studies with children and adolescents (Harbaugh et al., 2000) was conducted, like ours, in a classroom setting, but subsequent research tended to test children individually. Furthermore, it should be noted that, unlike in the original dictator game paradigm, only the allocation decisions of some participants had real consequences for themselves and the recipient. Thus, although participants knew their allocations *could* have real consequences in terms of payoff, they might have regarded their decisions as hypothetical.

We also inquired about participants' fairness judgment and their emotional response to the decision they made to assess the validity of the fairness norm in sharing. Most participants across ages, cultures, and experimental conditions deemed equal sharing as the morally right

choice (Keller et al., 2013). In contrast to the sharing decisions, fairness judgments were unaffected by the models' suggestions. While previous research indicated that sharing in tasks like the dictator game is influenced by the social context or the framing of the situation (e.g., Camerer, 2003; Malti, Gummerum, Ongley, Chaparro, & Nola, 2016; Paulus & Moore, 2014) even preschool children recognize that moral norms, that protect the rights and welfare of others, are valid independent of social context and the rules set by authorities (Turiel, 1983). Thus, not only did our study reveal a gap between participants' fairness judgments and behaviors, it also showed that the social influence of others affected participants' sharing decisions, but not their fairness judgments. It would be intriguing to study under what circumstances others' social influence can change children's moral judgments (see Engelmann et al., 2016; Kim et al., 2016).

A higher proportion of adolescents who had shared as much (or more) as what they considered fair reported being happy than those who gave less than they considered fair, while there was no such difference for 9-year-olds. This corresponds to research in the happy-victimizer paradigm (e.g., Krettenauer & Johnston, 2011; Ongley & Malti, 2014) showing that positive moral emotions, such as happiness and pride after engaging in prosocial actions, emerge in late childhood and adolescence. This research additionally proposes that positive moral emotions might be particularly associated with costly moral actions in situations where selfish desires conflict with others' welfare. Together, our results suggest that, although there seems to be a dissociation between fairness judgments and actual sharing decisions, the emotion following the sharing decision depends on integrating both.

We observed very similar results in the Italian and Singaporean samples: Participants shared more in the fair suggestion condition; the adult models' suggestions were more influential for children's allocations, whereas adolescents' sharing was more affected by the peer model.

Especially the latter finding indicates the importance of peers for adolescents' fairness behavior across cultures. Yet, whereas Italian 12-year-olds were indifferent to the adult model's suggestions, Singaporean adolescents displayed a seemingly "anti-adult" attitude: They were *less* generous when the adult model suggested fair sharing and vice versa. This contradicts the idea (and our hypothesis) that East Asian children and adolescents would be more obedient to adult authorities than their western peers. With increasing age, children understand that adults derive their authority not just from their age, but also from their status and social context (Laupa, 1991). Singaporean adolescents thus might have regarded the adult model as a non-legitimate authority in this situation. Future research could investigate this question by varying the (moral) legitimacy of the (adult) model.

To conclude, we presented children and adolescents with a comic character suggesting how goods should be shared. This simple manipulation had a rather strong influence on participants' actual sharing decisions, similar to previous research which indicated that children readily learn from and conform to information presented by real-life or video-taped models, puppets or drawings (e.g., Benozio & Diesendruck, 2016; Kim et al., 2016; Wood, Kendal, & Flynn, 2013b). In line with social learning theory (Bandura, 1977), our results demonstrate the power of models to influence children's and adolescents' fairness-related behavior, showing for the first time that the magnitude of this power depends on the match between model type (e.g., adult or peer) and developmental phase (e.g., child or adolescent). Future research could explore further the thresholds of models' influence on children's moral behavior, judgment, and emotions through testing the effects of different prompts (e.g., videotaped vs. real-life models), type of models (e.g., celebrities, family members), and varying the competence and legitimacy of models. Given the ubiquity and ease with which children learn from others as well as the



importance of morality for human societies, understanding when, why, and how others' moral recommendations affect people's decisions, judgments, and emotions remains a crucial topic for future research.

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Figure 1. Average number of chocolates given away by participants, displayed by age (9- vs. 12-year-olds), model (adult vs. peer), suggestion (fair vs. unfair), and country (Italy vs. Singapore).

Error bars represent one SEM in each direction.

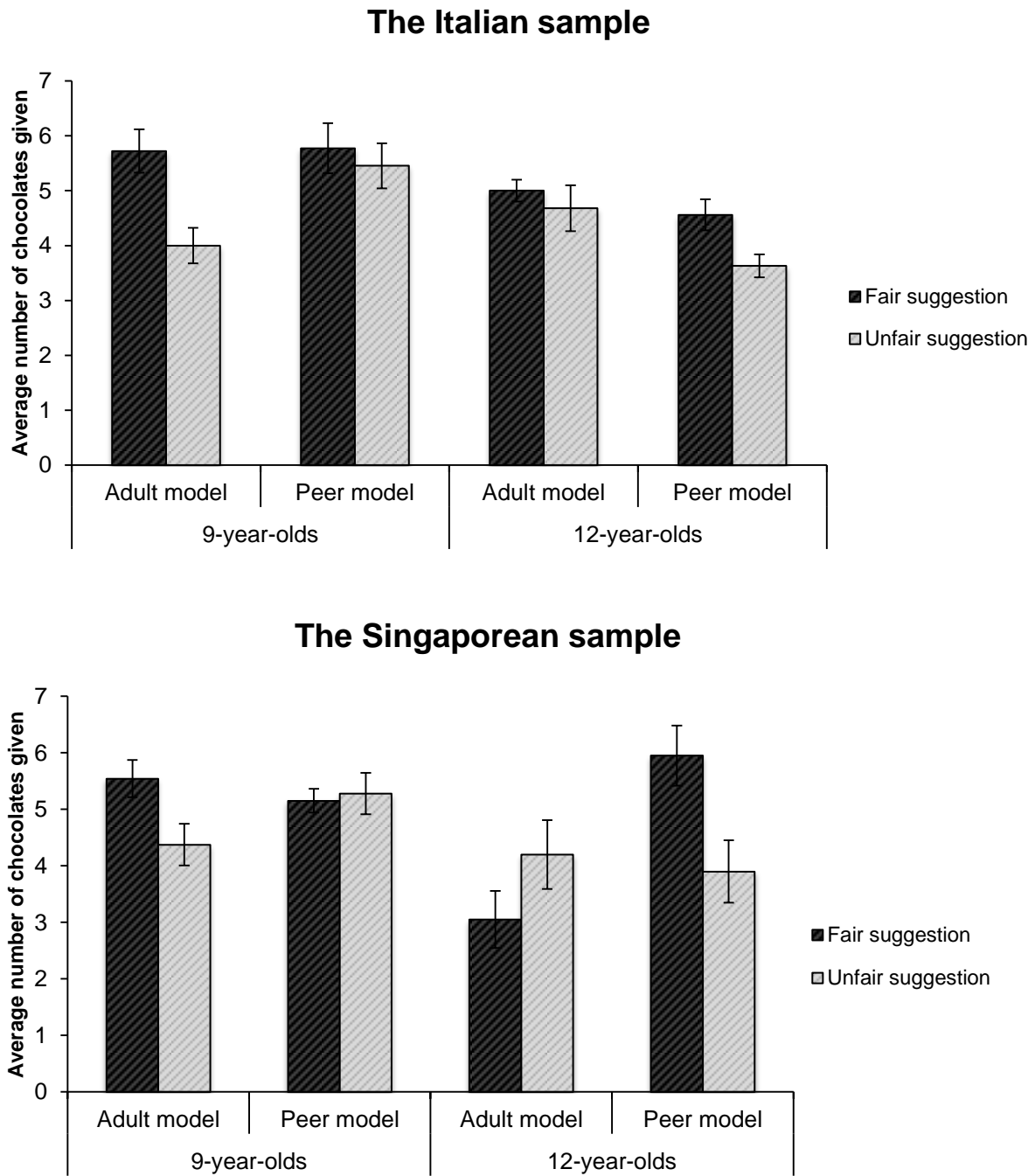


Figure 2. Proportion of participants who reported being “happy,” displayed by age (9- vs. 12-year-olds), dissonance (negative vs. positive or none), and country (Italy vs. Singapore). Error bars represent one SEM in each direction.

